



Level playing Nuffield

Struggling against a tariff system seen to be working against it, the Nuffield Orthopaedic Centre's (NOC) move into modern, purpose-built accommodation has taken place under a financial cloud. Andrew Sansom heads to Oxford to see how the new building shapes up.

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There was a sense of irony for the Nuffield Orthopaedic Centre NHS Trust that Gordon Brown should announce the budget on the same day as a debate was held on the impact on orthopaedic hospitals of the national tariff. Although designed as an incentive to healthcare providers – under the Payment by Results financial reform – to run an efficient service, by making payments to NHS trusts based on the average cost of operation, the new system effectively penalises specialist orthopaedic services, owing to the long-term post-operation treatments they deliver to complex patient groups.

The advent of independent sector treatment centres (ISTCs), which were designed to create extra capacity for routine NHS services, has exacerbated the financial uncertainty of specialist hospitals. Debating the issue on 21 March, Labour MP Andrew Smith, said: "I, and indeed, the medical staff at the Nuffield, have defended the contribution that pluralism in provision can make, notably to increasing capacity and cutting waiting lists, but there must be a level playing field, and an absolute requirement for parcelling out the more routine work is fair remuneration for the complex work that only specialist centres can undertake."

During the debate, Health Minister Andy Burnham said a new Healthcare Resource Group, which will better differentiate specialised services for pricing purposes, would come into play in 2009/10. Measures aimed at ensuring specialised services are fairly reimbursed are also being considered for 2008/09, to counter next year's expiration of top-up relief payments. But even with such measures, difficulties in planning and infrastructure development are



threatening the very future of such hospitals.

It is against this political backdrop that the NOC has recently opened its doors to a new £42m PFI-financed hospital – already regarded by a Thames Valley Orthopaedic Review as financially unviable as a standalone facility, owing to the tariff and the expected loss of around 600 general procedures to the Capio ISTC in Horton, Banbury. Certainly, the new environment – a winner at the Public Private Finance Awards 2003 in the 'Best health project under £45 million' category – gives little indication of a hospital in jeopardy.

The project got underway in 1999 when the trust decided that it couldn't continue in its old buildings. "The idea of this building was to replicate the service we had previously. What we wanted to do was put it into a building of a much better standard," Frank Johnston, the trust's

director of capital projects and site services, explains. "The rationale for affordability was a big improvement in clinical adjacencies, and savings on energy conservation."

Once a business case had been drawn up in 2000, the decision was made to go down the route of PFI. Albion Healthcare – a consortium comprising main contractor Morrison PIL, consultancy United Medical Enterprises, maintenance provider Group 4 Falck (now Global Solutions) and Barclays Private Equity – won the bid, and financial closure was achieved in April 2002. Vital funds were generated by a £6.6 million charitable donation from the NOC appeal, resulting in a lower unitary charge paid by the trust.

In 2003, however, the trust had to respond to a government initiative to build new diagnosis and treatment centres. To create the extra space it was forced to go back to the banks to finance a variation in the design of decant facilities. Pushing up the cost from £37m to £42m, the trust's repayments were subsequently increased. The project was also carried out during a period of fluctuating changes in ownership at Morrison Construction. However, the site team for the NOC remained intact, minimising any knock-on effect this might have had on the scheme.

Planning the build while maintaining an uninterrupted medical service proved one of the major challenges for the project team, and required a complex decant and demolition programme to facilitate the phased construction. Beginning in September 2002, phase one, which involved the construction of a new building on the existing car park, was completed in April 2004, followed by the trust moving in. Redesign on the decanting process and demolition of existing buildings delayed the start of phase two by about six months. But by the end of March this year, 75% of staff had already moved into this accommodation, with 100% transfer expected by early April. Further demolitions are now planned, with car parking and landscaping to be completed by July.

HUB-AND-SPOKE DESIGN

Conceived around a concentric hub-and-spoke format on a 17,860m² development, the new NOC has been designed by architects RTKL. Built in reinforced concrete, the main atrium forms the hub from which the wards and other clinical services span out, with way-finding eased via the use of colour to distinguish different floor areas and departments. "The main idea of the building is that from the main atrium space it's very easy to find your way around," explains associate project director and architect Jeff Soutar. "As you enter, the outpatients departments are adjacent to the main entrance, so people coming in for outpatient appointments don't need to go deep into the building."



With its clinical adjacencies and short corridors, the layout also promotes inter-departmental communication and staff-working efficiencies. "Pathology is right next to the theatres and the surgeons are right next to them, so they sit in between," comments Soutar. "There's a hatch where the samples can go from theatre into pathology, and get immediate results, which are run back into theatre."

Unlike the old hospital, which had about a dozen entrances, the new facility has a single main reception. Not only does this aid way-finding but it also helps to manage security more effectively, which is now coordinated through a swipe-card access control system. Johnston explains: "At long last, we can control entry into the building. We can restrict staff to other areas and we can find out who's been into the building and accessed it at any time. We can also control the blocking-out of cards as people leave."

Boasting one of the lowest MRSA/*Clostridium difficile* infection rates in the country, fewer entrances should also help the hospital manage cleanliness, attention to which

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was identified at the consultation stage, particularly in the design of the operating theatres. Continuing the circular theme of the building, the arrangement of the theatres is divided into three pairs, with an "innovative separation of dirty and clean areas", explains Martin McNally, a consultant in limb reconstruction surgery. Patients who enter the unit travel round the outside and into an anaesthetic room, before moving into theatre. Electric sockets for vacuum-suction equipment or distribution of gases are located in ceiling-attached frames, aiding the rapid transit of trolleys. Post surgery, patients are transferred into a central core, where they move into a sterile area and then into recovery.

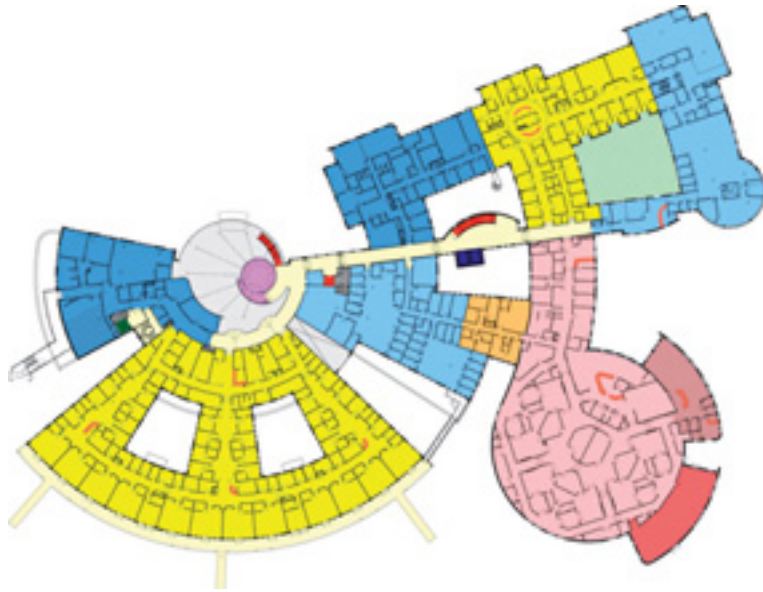
Unsurprisingly, cleanliness concerns extend to the use of materials. Floors are non-slip, featuring seamless linoleum finishes with curved plastic coving to keep dust out – except the atrium, which is a form of granite. In offices, soft-floor carpet tiles can be easily removed and cleaned, or repaired if needed, while paediatric areas feature soft multi-coloured vinyl floors to cope with crawling children. In terms of energy conservation, the NOC's 30 air handling units have runaround coil heat-recovery systems to reduce wastage of hot and cool air, yet without compromising the infection-control measures the hospital has in place.

Harnessing the natural elements to reduce stress and create a warm therapeutic environment was another key principle borne out by the design. Large floor-to-ceiling glazing panels, particularly evident in the main atrium but also repeated in places like the imaging department's waiting area, promote calmness. For patients awaiting MRI scans, for example, this atmosphere can help to relax patients and reduce their need for sedative. Claustrophobic patients can now be examined under a £1.5m 360° open MRI scanner, which not only enables a relative or friend of the patient to accompany them during the procedure, but also allows a surgeon to carry out simple intervention work.

Aware too of the healing powers of natural light, access to outdoor space has also been maximised. "Lots of patients being elderly can be here for some time," comments Soutar. "Bone infection and rheumatology, particularly, are two of the wards that require access to outdoor space. Even in the

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PROJECT □ □ □



Level 1 plan showing hub-and-spoke design

old buildings you'd see beds outdoors in the summer, so the patients could go outside in the sunlight. That was one of the things we were trying to repeat in the building." So, despite the fact that the Bone Infection Unit – which includes isolation rooms and is said to be the only dedicated unit of its kind in Europe – is located on the first floor, the need for outdoor access has been accommodated, with wards opening out onto a ~~promenade-style balcony~~

There are five courtyards, plus an outdoor play space for paediatric outpatients. Located next to a gym and still to be landscaped, an outdoor therapy area will allow therapists to gauge how patients cope with ramps, steps and paved surfaces. As well as providing a focal point for static art sculptures and live performing arts and music, the courtyards and general orientation of the building afford plenty of natural ventilation. And according to Simon Witts, a design consultant at M&E contractor White Young Green, solar control is also applied: "The west and south faces of the building have brise soleil. This limits the solar gain to the rooms and has negated the need for mechanical cooling of the majority of spaces." Helping the building to blend in with the landscape, the aluminium roofs on the main wards are deliberately low-pitched, while external timber cladding

Plan showing peri-operative suites



acts to soften the structure. Adding further differentiation, all straight walls are in brick, and curved walls in render.

ADAPTABLE ARRANGEMENTS

As well as being a local orthopaedic hospital and a specialist centre for complex bone and joint conditions, the NOC is also a major teaching centre and houses a leading musculoskeletal research centre. Catering for this range of roles demanded flexibility in design and Johnston is confident this has been achieved. Likening it to the electron theory, with things in a constant state of flux, he points to the availability of a lot of shell and core space, which should allow imaging to keep up with changes. The circular theme also allows for a degree of expansion, says Johnston, as you can bolt things onto the outside. And the trust is planning to do just that with the development of its own sterile service department, which is to be added onto the periphery of the theatres.

Soutar adds: "We've got quite a lot of soft space in the building, which could be adapted to something else. So for instance, offices could move out to another building and they could become a ward." The wards have also been designed to allow for changes in the number of beds, but with 50% of the patient rooms now single occupancy, and all rooms en suite, privacy and dignity of patients remains closely guarded.

The centre is rich in many other new facilities, including a six-bed high dependency unit for emergency post-operative care and a cylindrical multi-faith chaplaincy, with sound-absorbing panels affording function as well as aesthetic appeal. A new hydrotherapy pool has also been included, and was completely funded by the NOC appeal. According to McNally, the pool aids patients in need of physio, by not only giving them a "confidence boost" but also enabling them to do more "muscle-building and resistance work".

Thanks to the new building, the trust should be equipped to deliver a more cost-efficient, patient-focused service. For example, the concentration of one main reception entrance should reduce the number of reception staff, with resources reassigned to patient care. But many will feel that such efficiencies will be in vain unless the tariff is revised to allow the NOC to compete on a level playing field. Indeed, acting chief executive Jan Fowler is adamant that the South Central Health Authority's proposal of a merger with the Oxford Radcliffe would only mask the problem and impose a greater financial burden on the larger hospital. It appears there is much political leg-work still to be negotiated before the trust can look forward to a secure future in its new home.

Andrew Sansom is a freelance journalist

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Trust: Nuffield Orthopaedic Centre NHS Trust
 Consortium: Albion Healthcare
 Architect: RTKL
 Main contractor: Morrison Construction
 Mechanical & Electrical and structural: White Young Green
 Facilities management: Global Solutions
 Landscaping: Fira
 Cost consultants (trust): Cyril Sweett
 Financial advisors: KPMG
 Legal advisors: Eversheds
 Phase one: September 2002 – April 2004
 Phase two: November 2004 – March 2007
 Capital cost: £42m
 Site area: 17,860m²
 Number of beds: 162
 Car parking: 443 spaces